

# Super Chipmunk (35%)

## Instruction Manual



The CARF-Models Super Chipmunk is a masterfully engineered aircraft that combines the timeless elegance of a classic showplane with the advantages of modern composite construction. The entire airframe is built from lightweight, high-strength composite materials, ensuring exceptional durability without compromising on performance. The design stays true to the original Super Chipmunk's iconic lines, offering a highly detailed and accurate scale appearance, right down to the cockpit and cowl shape. Despite its scale fidelity, the structure is purpose-built for demanding aerobatics, blending traditional charm with high-performance capabilities in a way only CARF-Models can deliver.



# Liability Exclusions & Safety Responsibility

You have acquired a kit, which can be assembled into a fully working R/C model when fitted out with suitable accessories, as described in the instruction manual with the kit. However, as manufacturers, we at CARF-Models are not in a position to influence the way you build and operate your model, and we have no control over the methods you use to install, operate and maintain the radio control system components. For this reason we are obliged to deny all liability for loss, damage or costs which are incurred due to the incompetent or incorrect application and operation of our products, or which are connected with such operation in any way. Unless otherwise prescribed by binding law, the obligation of the CARF-Models company to pay compensation is excluded, regardless of the legal argument employed. This applies to personal injury, death, damage to buildings, loss of turnover and business, interruption of business or other direct and indirect consequent damages. In all circumstances our total liability is limited to the amount which you actually paid for this model.

## **BY OPERATING THIS MODEL YOU ASSUME FULL RESPONSIBILITY FOR YOUR ACTIONS!**

It is important to understand that CARF-Models Ltd., is unable to monitor whether you follow the instructions contained in this instruction manual regarding the construction, operation and maintenance of the aircraft, nor whether you install and use the radio control system correctly. For this reason we at CARF-Models are unable to guarantee or provide a contractual agreement with any individual or company that the model you have made will function correctly and safely. You, as operator of the model, must rely upon your own expertise and judgement in acquiring and operating this model.

### **Personal safety**

There are a couple of things that are good to keep in mind when you are assembling your CARF-Models Super Chipmunk (35%). Some of them are common sense, but it doesn't hurt to be reminded. While you are working with tools and sharp implements, be aware of others around you and the environment you are working in. When cutting or sanding materials, always wear a face mask to avoid inhaling particles. Keep your work environment clean and tidy at all times. A clean workshop will enhance the experience. Protect all parts from scratches and dents. Use rubber matting on your bench, and be careful of components like screws getting between the part you are working on and the bench. BE CAREFUL with the two combined ultra torque servos, open pushrods, and bell cranks - there is imminent danger to break your fingers when you switch on the RC system.

### **Assembly process**

This manual is set to provide detailed pictures of the building steps. You may wish to change and do some things in a different order, which is fine provided you keep in mind that some things need to be done before some others. When planning out the installation of your components, always keep the centre of gravity location in mind. If you plan ahead you can avoid having to add weight to your model. It is far easier to remedy a nose heavy model than a tail heavy model. A few grams of lead at the rear is preferable to hundreds of grams in the nose! You will find that it is easiest to fit items that cannot be relocated, like aileron, elevator, rudder and throttle servos, before you do a preliminary C of G check. Receivers, ignition and batteries etc. can generally be relocated to suit your requirements.

**Most of all, enjoy the process of creating your CARF Super Chipmunk (35%), a job well done is always satisfying!**



# Super Chipmunk (35%)

Category – Scale Props



## About

This is a quick guide to the successful installation of RC and propulsion equipment into your new Super Chipmunk (35%). We do not have a lengthy manual to bore you with how to tighten a bolt or how to clean a surface before gluing and such. We will provide within this manual the specific details of rigging this airplane successfully for many hundreds of hours of competition flying.

All the equipment we provide is thoroughly tested in this airplane. We did so many flights with the help of nameful pilots, powerful engines to proof if the power is enough and servos to make sure to recommend the best working equipment for you – and that's what we do with this manual now. PLEASE do yourself a favor and do not modify any of the design until you have a considerable number of flights on the airplane and have a feel for WHY you might want to change this or that, if anything. Please give us the chance to show you that our research and development has been serious and successful and the sophisticated final setup we came up with works better than anything else we tried. We tried a lot!

We have seen a lot of equipment, hardware problems and failures during our testing. What you hold in your hands now is the result of all this hard work. Every detail has a reason. If it isn't exactly what you would have used, please give us the benefit of the doubt, and consider that we might have ALSO been trying to use something else instead which hasn't been working reliably or safely. We do not intend to save cost by providing a cheap solution in hardware and equipment. We are ONLY driven by our test results.

## What do you need???

An example of the basic and main accessories required...



This is list of required products to complete your Super Chipmunk (35%) KIT. This list only is a recommendation of what to equip your airplane with. There is no reason similar products from other brands cannot be used in this plane. There are many ways and products on the market you can use with the Super Chipmunk (35%).

Amount	Required	Possible Accessories
1x	Engine	DA 170 / DA-180 / DA-200 / DLE222 / Ares 157-B2
1x	Exhaust SET	Zimmermann Exhaust SET
1x	Propeller	Falcon Carbon Propeller 30x12 / 31 x12 / 32x12 or similar
1x	Fuel Tank	Aerobatic Fuel Tank 1000 - 1500cc
1x	Smoke Tank	Aerobatic Fuel Tank 700 - 1000cc
1x	Smoke Pump	Holy Smokes Smoke Pump / Powerbox Smoke Pump
9x	Aileron, Rudder, Vector & Steering Servo	Mac Gregor MGB 8346 HV / MGB 8555 HV
1x	Servo Arm short	CARF Servo Arm Single 25T 16-28mm
6x	Servo Arms long	CARF Servo Arm Single 25T 20-38mm
2x	Servo Arms double	CARF Servo Arm Double 25T 40-76mm
1x	Gyro	Bavarian Demon Cortex Pro / Powerbox Igyro
1x	Power Supply	Jeti Central Box CB210 or 220 / Powerbox Pioneer
1x	Lighting	Super Chipmunk (35%) Lighting SET (Unilight)
1x	Kill Switch	Powerbox Sparkswitch RS
2x	RX Batteries	Lipo 2s 2200 - 3000mAh
1x	Ignition Battery	Lipo 3000 - 4000mAh
-	Servo Wire	Powerbox Servo Wire
-	JR Connectors	JR Connectors

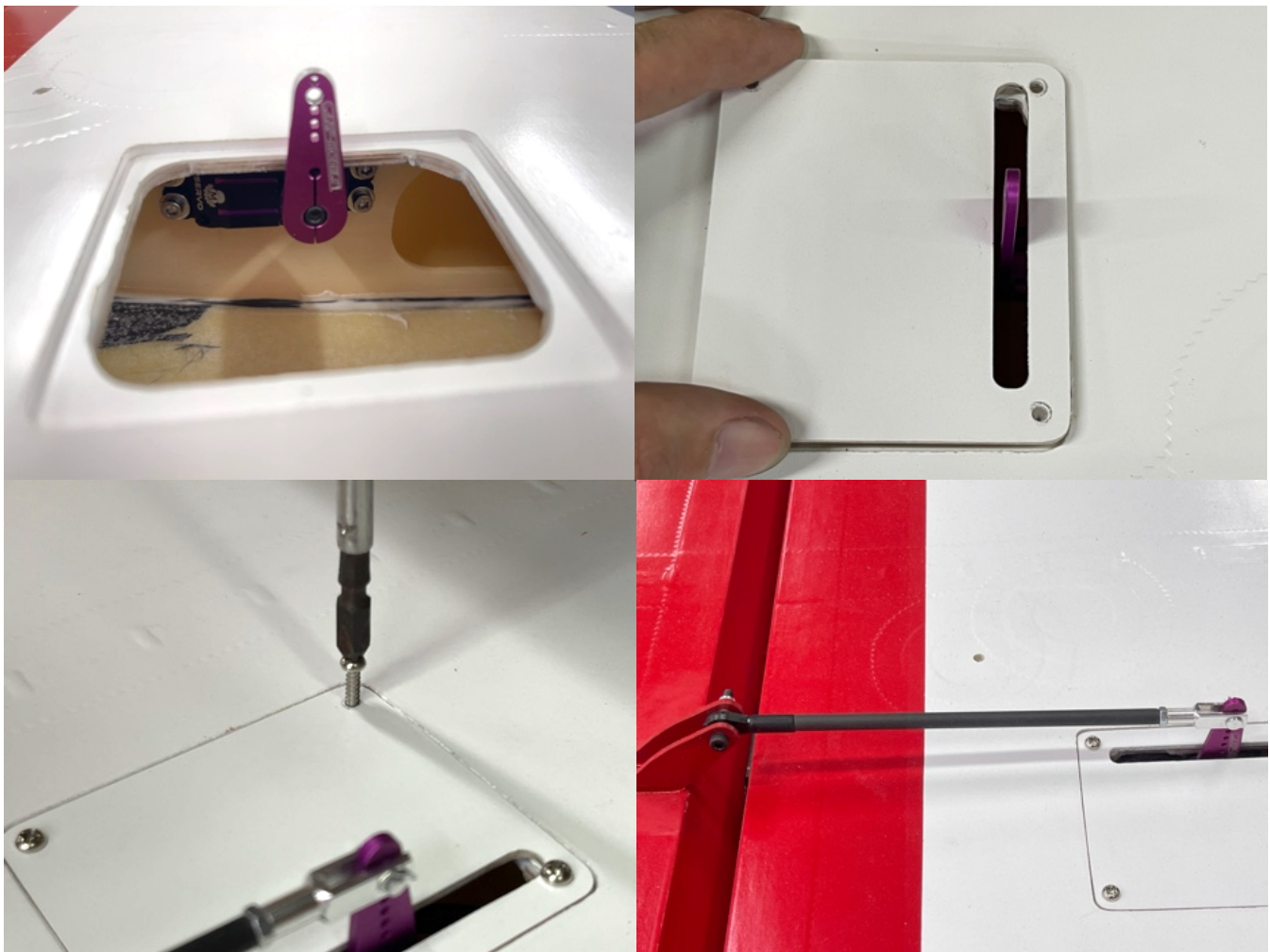
# Build Description

## Wings

### Servo Installation

#### Aileron Servo Installation:

- Prepare your aileron servo with your matching servo arm
- At approx. 35mm of the servo arm you drill a 3mm hole for the aluminium clevis
- Crimp a wire extension and connect in to the servo wire
- Place the aileron servo in the servo mount and screw it with 4x 3x12 allen metal screws and M3 washers
- Adjust the servo hatch and make sure your servo arm is centered in the servo arm slot (that position can vary with some servo brands with different servo case dimensions. Adjust the slot or use spacers under the servo)
- Assemble the aileron linkages with the M3 threads, 3mm carbon tubes, M3 nuts, M3 ball links and M3 aluminium clevis
- Check both linkages have the same length from the ball link hole to the aluminium clevis hole
- Install the aileron linkage with the included M3 bolts, washers, stop nuts and M3 aluminium clevis
- You may have to extend the linkage slot a bit in the length for more aileron deflection



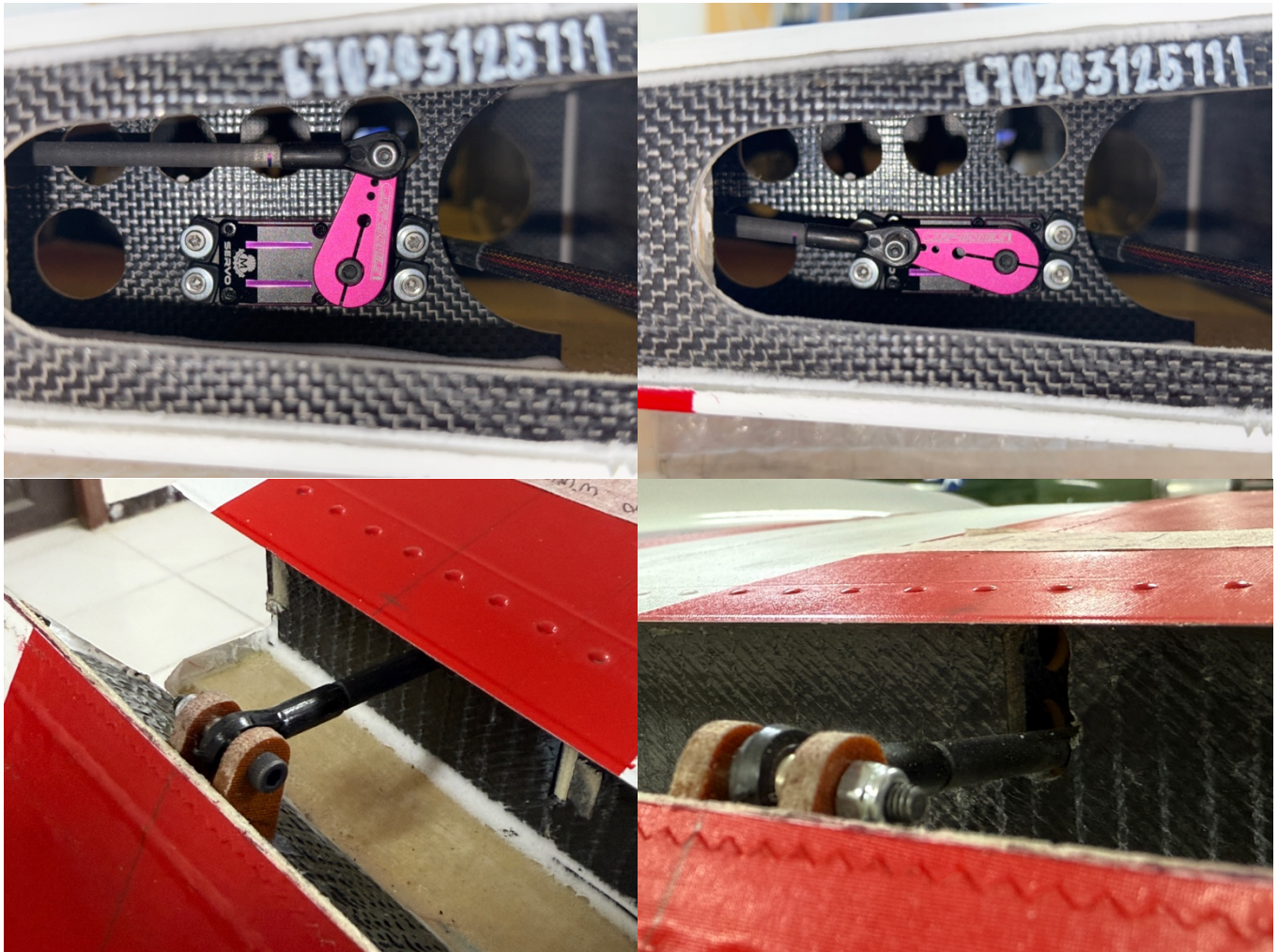


### Flap Servo Rules:

**At full deflection of the flap the servo arm needs to be in one line with the linkage to massively reduce the load to the servo! Otherwise it could break your flap servo within a few flights...!**

### Flap Servo Installation:

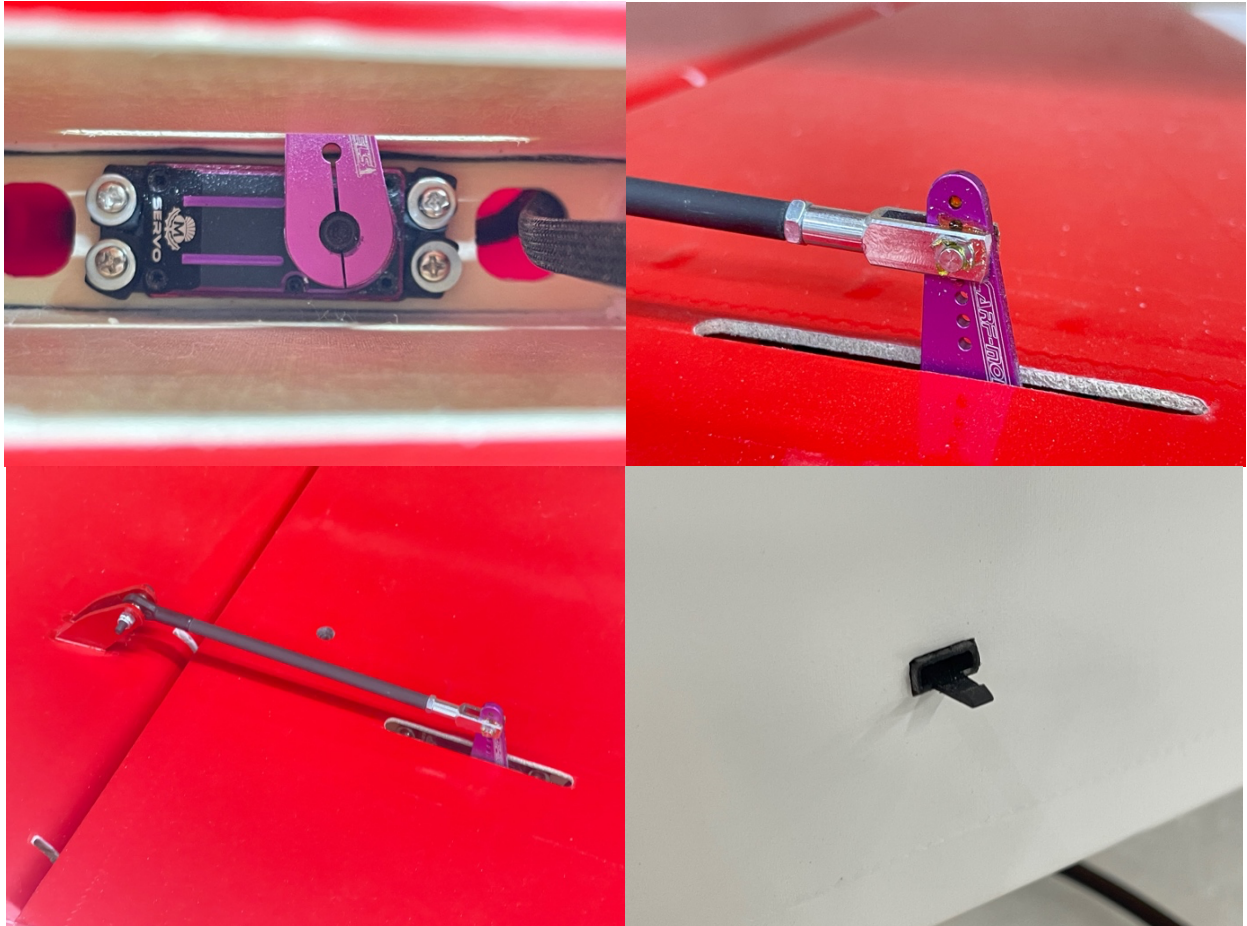
- Prepare your servo and servo arm to be able to get the in pictures one and two shown servo travel (That's the only way to install the flap servo)
- Also prepare your servo to hinge the flap linkage at 23mm length of the servo arm (best case you should drill a M3 thread into that hole)
- Install your flap servo with the servo arm in the servo slot within the wing
- Assemble the flap linkage by using 2x ball links, M3 thread and a carbon tube on top of the thread
- Position your flap at a 100mm travel and fix it in this position
- Put your flap servo top full travel and adjust the flap linkage to perfectly fit the full flap deflection
- Adjust the "flaps up" and "flaps takeoff" positions within your transmitter
- After everything works the way it should retighten all screws and make sure everything installed the correct way





## Stab

- Prepare your elevator servo with your matching servo arm
- At approx. 32mm of the servo arm you drill a 3mm hole for the aluminium clevis
- Now fit your servo wire through the servo mount and lead it back out of the elevator on the left or right cable slot
- Install your elevator servo with 4x 3x12 allen metal screws and M3 washers



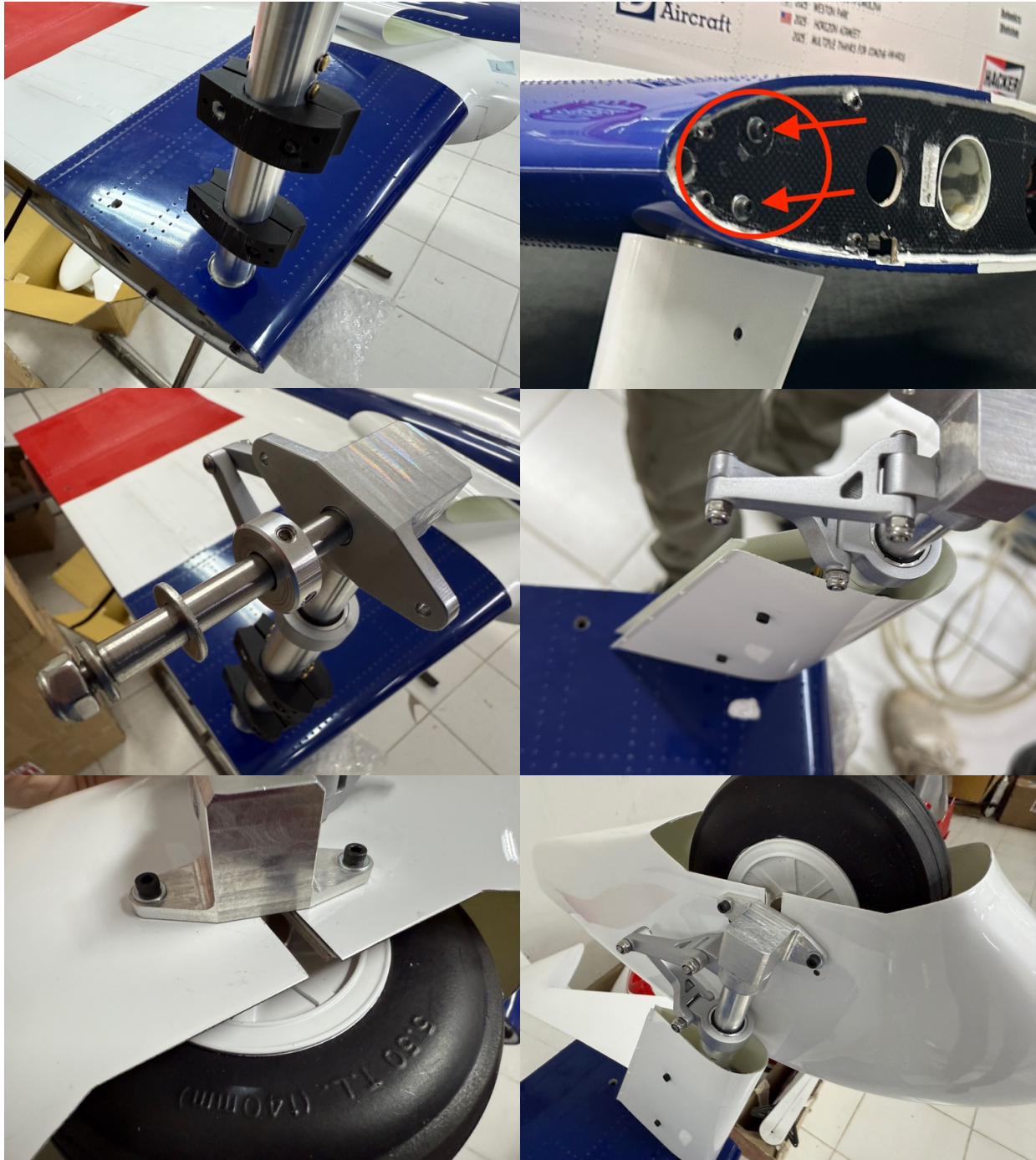
## Wing Connector:

- We recommend using connectors like the click connect/amp connectors or some others with 6pins
  - The wing is already prepared for this kind of connector



## Main Gear, wheel & wheel pant Installation:

- The Super Chipmunk KIT comes with a fixed scale landing gear which is designed to fit right into the round hole in the wing.
- It only needs to be pushed into this slot and will be fixed with two M4 bolt which will lock the strut in its position
- The next step is to install the gear strut fairing mounts (four 3d-print parts on each strut)
- After this is completed the gear strut will mounted to the, before installed, 3d-print parts
- Next up you can install the included main wheels on the left & right strut
- As the last step you will installed the factory prepared wheel pants using two M3 bolts





## Rudder

### Fin installation

- Before you start installing any rudder equipment you should place the fin onto the fuselage
- Prepare the fin by mounting the fin tube with a M4 bolt
- Now put some glue into the hole of the fuselage and some glue on the carbon fin tube
- While the glue starts drying you should already remove the fin so it cannot stick to the fuselage
- A different way is to mark the carbon tube while it's mounted to the fin and glue the carbon tube without using the fin
- In this case it's not easy to adjust the mounting point in the carbon tube in the correct angle to the fin



### Servo installation

- Prepare your rudder servos with your matching servo arms
- Place your assembled rudder servo board in the rudder servo tray (head at the front) and screw it in place with 8x allen metal screws 3x12



## Rudder cable installation

The rudder is connected via a rather traditional pull/pull setup (no crossover of the cables).

- Create the rudder cables with the two M3 ball links on rudder side first and fit them through the slot into the fuselage
- Then create the two M3 fork heads and crimp them the rudder cable on the servo side
- Double-loop the ends of the rudder cables in the back as well as in the front to make sure they won't slip out
- Crimp them to the correct length and allow a few mm of length adjustment with the threaded ends
- Then move the system from end to end to see that nothing is binding or rubbing



## Fuel Tank installation

- Before placing the fuel tank with the included welcro we recommend to put a 4mm brass tube in the fuel line to prevent the fuel line turning around (we recommend to put some anti slide material between the tank and the tray as well)
- You now can place either one or two fuel tanks on the rc/fuel tank board inside the fuselage

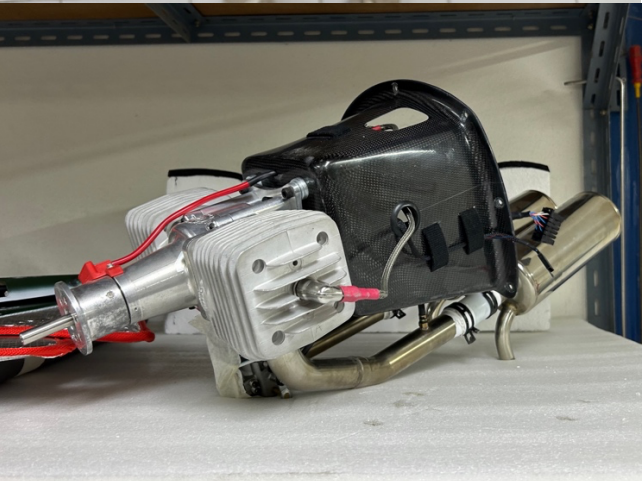
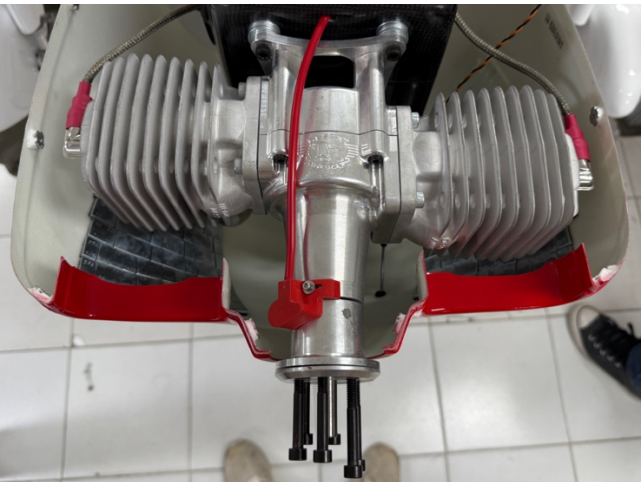
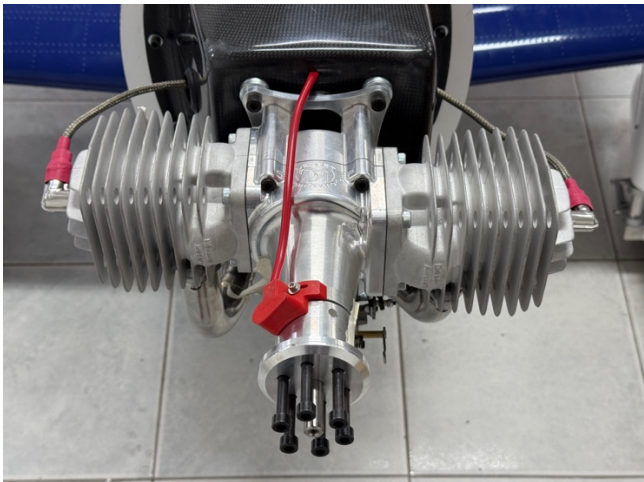




## Engine Dome installation

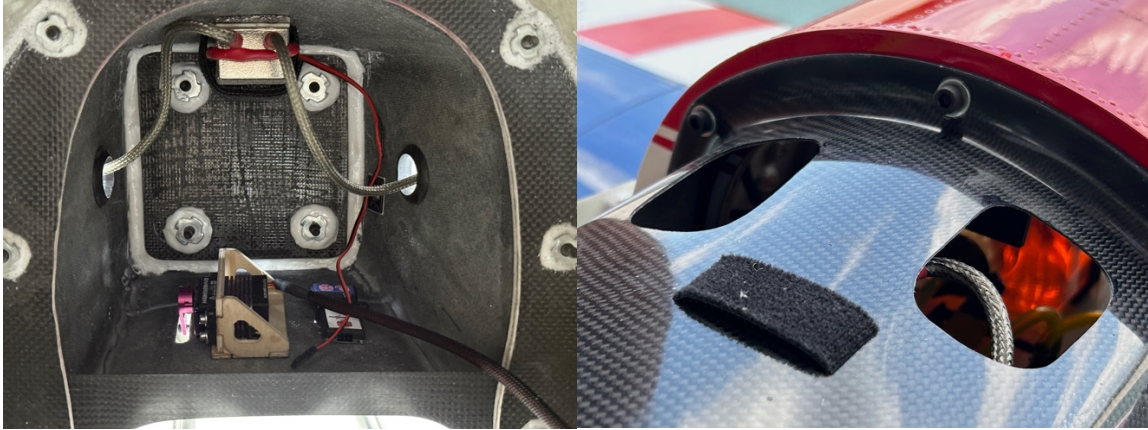
### Engine installation

- The firewall is all set with the perfect offset to match the cowling
- Before you start to work make sure you close all opening of your engine to prevent small pieces and dust coming into your engine
- Then stand the plane up on its tail with the bottom half of the cowling bolted
- Use the engine with your standoffs and the upper cowling to perfectly line up your engine
- When your engine is lined up, take off the cowling and mark the holes at the firewall
- Use the marked spots to drill the holes into the firewall
- Before drilling bigger holes for the included M6 T-Nuts make sure your engine really is middled by assembling the whole cowling once again
- Now drill bigger holes to fit 4x T-Nuts from the back of the firewall and screw your engine with the 4x included M6 50mm bolts and M6 washers
- Don't forget to put a drop of Loctite on each of your engine bolts
- If you like you still can add 4x M6 washers with M6 stop nuts from the back (not included)



## Ignition installation

- The ignition should either be installed on top or from the inside to the top of the engine dome
- You can place the ignition by drilling four M3 holes into the engine dome's top side and mount it with 4x M3 screws, washers & stop nuts

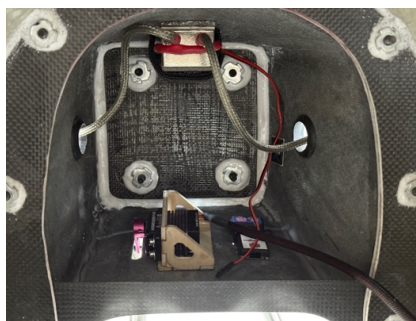


## Throttle Servo & Ignition Switch installation

- You can assemble the servo mount, install the servo and linkage
- Next up you should install the servo mount including the servo into the engine dome by using two M3 bolts and M3 stop nuts



- Because you're already working on the engine dome you can install the ignition switch as well as the fuselage connector and the fuel line which connects the carburetor and the fuel tank.



Now your engine dome should be all set and you can move on to the next step...



## Canister installation

- The KIT has included a canister mounts Zimmerman canisters (DA170/180 & similar 170cc engines)
- Place it with the included silicon tubes on the preinstalled mount with 4x screws
- We recommend to secure your manifold/canister connection with screws between the clamps so the canisters cannot go off or turn so easily

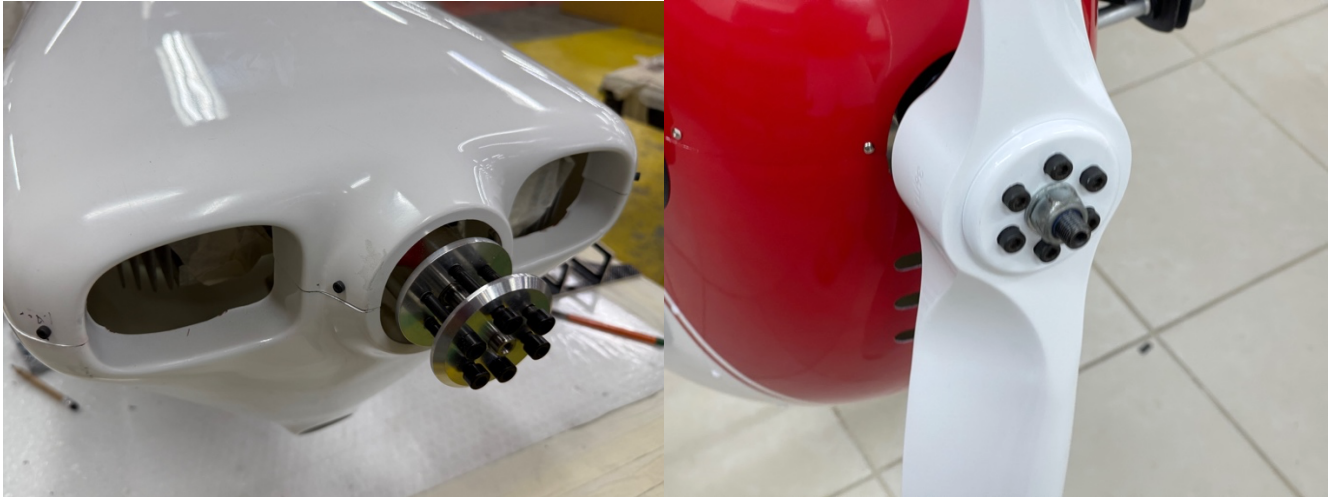
⇓ Installation of the Zimmermann canisters ⇓



- If you want to install your ignition switch or smoke pump on the muffler compartment later you need to install some wood plates at your preferred positions from the inside of the muffler compartment

## Propeller installation

- After you have drilled the propeller you place it on the crankshaft pin
- You should be able to screw every single screw by hand until they are all in (if that's not possible you need to sand or extend the hole until it is)
- Tighten the propeller screws in a crossover and then tighten them clockwise



## Tail Gear installation

### Tail Gear

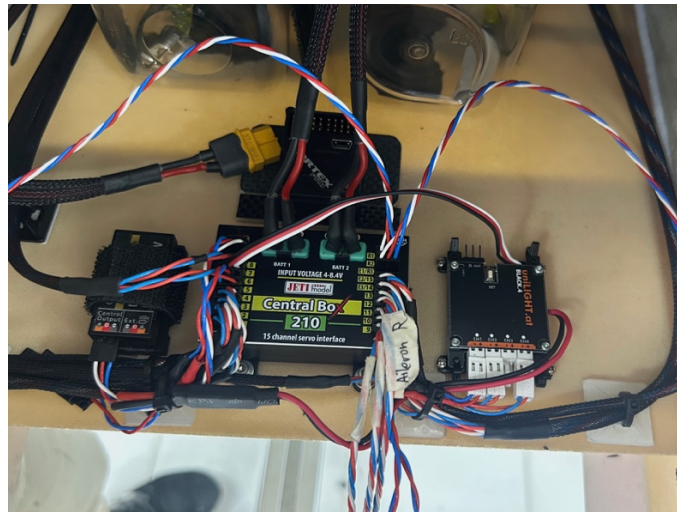
- Mount the tail wheel using the in the hardware included 4x M4 bolts with washers
- Don't forget to put some loctide





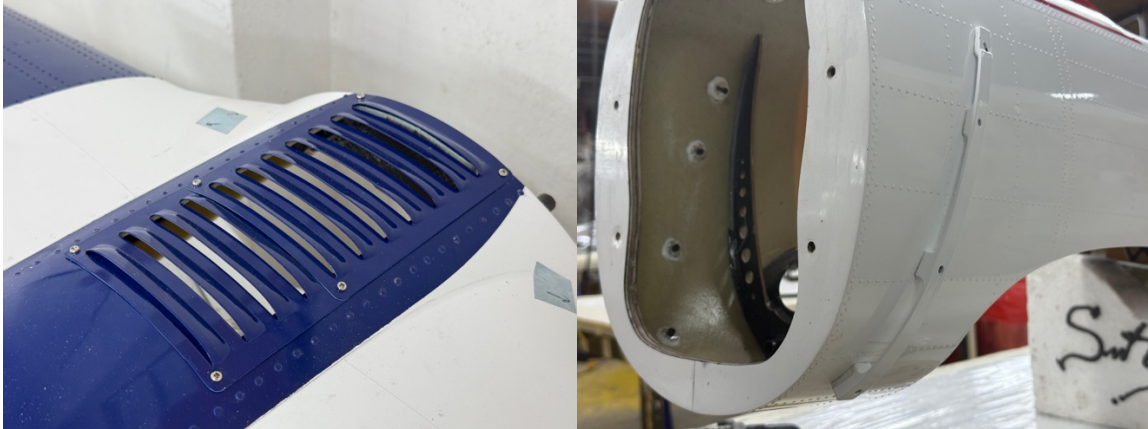
## RC Power System

- Mount your central box or similar power supplies on the included and already installed rc board (Please don't only use double sided tape to secure your power system, it's a prop plane with vibrations)
- It's the heart of the plane and shouldn't be able to move or fall off and cause an accident
- If your system doesn't have mounts use some welcro, cable ties or design your own mount to secure it
- Right next to the power supplie you can mount your gyro and rc switch (Jeti) as well as the batteries
- We recommend to drill some holes into the rc board where you can fit your wires through to the power supplie, gyro and switch which only is nessessary for a better look and wire management (you still can connect the wires from the left and right site of the rc board)



**More Pictures...**

**Ignition cable:**



## Final Settings

### Control Throws:

The throws all can be set up to maximum travel to run between 35-50% expo.

For low rates you can reduce the elevator and rudder control throws by 30% and the aileron throws by 15%, but that is very much up to your personal preference.

If your using a gyro in your Super Chipmunk you should set it between 5-15% gain. If you are not really sure or new to gyro you can use a rotation switch on your radio to adjust the gyro midflight (don't do that yourself, always ask your flying buddy for help in that case!)

We recommend to use three flight modes:

Normal

Aerobatic (flaps mixed with the ailerons)

Landing (full flaps)

Thank you for being a loyal customer, for choosing a fine and technologically very sophisticated aircraft over many other, maybe simpler built choices on the market. We are sure you will enjoy every minute of building and flying your Super Chipmunk.

We hope you have enjoyed assembling your CARF-Models Super Chipmunk and you have many years of happy flying with it. If you have found yourself in difficulty and need some assistance, your sales rep is only an email away. Please contact your rep and they will endeavour to assist you, and get you back on track. Alternatively you can contact us via the emails below. We also welcome your feedback, please contact us if you would like to see something added or altered. We are always looking to improve our products and the information we supply.

[www.carf-models.com](http://www.carf-models.com)

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